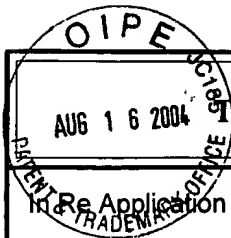


8-17-04

IFW AF/1734



AUG 16 2004

## TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No.  
FGT-10802/44

Re Application Of: Daniel Joseph Ondrus

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/544,423	April 6, 2000	George R. Koch	32996	1734	7482

Invention: METHOD FOR FORMING A JOINT

COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on

The fee for filing this Appeal Brief is: \$330.00

- ☒ A check in the amount of the fee is enclosed.
- ☐ The Director has already been authorized to charge fees in this application to a Deposit Account.
- ☐ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 07-1180
- ☐ Payment by credit card. Form PTO-2038 is attached.

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

*Beverly M. Bunting*  
Signature

Dated: 8-16-04

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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as ~~first class~~ mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CF. : 1.8(a)] on 8/16/04  
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*Janice R. Kuehn*  
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Attorney Docket No. FGT-10802/44

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BOARD OF APPEALS AND INTERFERENCES**

Applicant: Daniel Joseph Ondrus

Serial No.: 09/544,423

Group Art Unit: 1734

Filing Date: April 6, 2000

Examiner: George R. Koch

Title: METHOD FOR FORMING A JOINT

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**APPEAL BRIEF**

Mail Stop Appeal Brief – Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

**I. Real Party in Interest.**

The real party in interest is the assignee, Ford Motor Company, as evidenced by the Assignment of the inventor, Ondrus, recorded on April 6, 2000, at Reel 010747 and Frame 0321 in the U.S. Patent and Trademark Office.

**II. Related Appeals and Interferences.**

There are no related appeals or interferences.

**III. Status of Claims.**

Claims 1-22, 24, 27-30, 32 and 35 have been canceled. Claims 23, 25-26, 31, 33, 34 and 36 all stand pending in this application, and are the subject of this appeal.

**IV. Status of the Amendments.**

An amendment was filed on May 24, 2004 subsequent to the final rejection made in the Office Action dated March 24, 2004. However, in an Advisory Action dated June 9, 2004, the proposed amendments were not entered.

**V. Summary of the Invention.**

The present invention relates to a method of repetitively forming a joint during a manufacturing process between two members using a viscous adhesive. The method includes the steps of positioning a first member to be in contact with a second member, and the area of contact between the members forms a coach joint. The joint includes a coverage portion extending along the first member from a first point on the first member to a second point, and a fill portion adjacent the coverage portion. The method also includes the steps of depositing adhesive along up to fifty percent of the coverage portion and up to ten percent of the coverage portion to consistently form a coach joint interconnecting the first member with the second member during the manufacturing process. The adhesive amount and placement of adhesive within the fill and coverage portions of the coach joint is designated to keep seepage to a minimum and stress transfer to a maximum.

Claims 31 and 36 are similar to claim 23 and include further features. Claim 31 is also directed to a coach joint defined by a coverage portion extending along the first member from a first point at a first end of the first member to a second point at which the first member begins to curve to form a tangent portion, and a flange fill portion extending from the second point to a line segment that is collinear to the tangent portion. Claim 36 is directed to a lap joint, and the coverage portion is defined, and the adhesive is deposited between fifty to seventy-five percent of the coverage portion.

**VI. Issues.**

As set forth in the Office Action Summary having a mailing date of March 24, 2004, there two issues in this appeal, namely:

1. Whether claims 23, 25, 26, 31, 33, 34 and 36 are unpatentable under 35 U.S.C. §103(a) as obvious over U.S. 4,759,489 to Pigott in view of Adhesives Handbook (pages 1-19, 28-31, 40-43 and 94).
2. Whether claims 23, 25, 26, 31, 33, 34 and 36 are unpatentable under 35 U.S.C. §103(a) as obvious over U.S. 5,849,122 to Kenmochi in view of Adhesives Handbook (pages 1-19, 28-31, 40-43 and 94).

This appeal brief will assume that the above statutory rejections are the only rejections intended by the Examiner.

**VII. Grouping of Claims.**

Claims 23, 25, 26, 31, 33 and 34 are separately patentable from claim 26. Independent claims 23 and 31 are directed towards a method of forming a coach joint between two members during a manufacturing process using a viscous adhesive. Independent claim 36 is directed towards a method of forming a lap joint between two members during a manufacturing process using a viscous adhesive. Thus, claims 23, 25, 26, 31, 33 and 34 stand separately and do not fall together with claim 36.

**VIII. Argument.**

**A. First 35 U.S.C. §103(a) Issue.**

Claims 23, 25, 26, 31, 33, 34 and 36 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Number 4,759,489 to Pigott in view of Adhesives Handbook (pages 1-19, 28-31, 40-43 and 94). Applicant traversed this rejection.

In the final Office Action dated March 24, 2004, the Examiner stated:

Claims 23, 25, 26, 31, 33, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,759,489 to Pigott in view of Adhesives Handbook, (pages 1-19, 28-31, 40-43 and 94).

Pigott discloses an assembly line method (see column 3, lines 3-34) wherein a variety of joints are made by use of adhesive (see Fig. 4 and column 4, lines 53-64, see Fig. 17 and column 5, lines 1-10, and Fig. 19, columns 22-33). The joints are provided between a first member and a second member as claimed. Pigott also discloses that the joints would be of use in vehicles such as automobile bodies (Abstract, line 1).

Pigott does not disclose depositing adhesive up to fifty percent of the coverage portion and up to ten percent of the fill portion to form the joint between the first and second member, so that seepage of the adhesive from the joint is a minimum while stress transfer of the joint is a maximum. Nor does Pigott disclose the various areas and length percentages. Pigott also does not disclose that the adhesive is viscous, and is silent in this regard.

However, an assembly line method would inherently have a predetermined coverage length, and the coverage percentage would be a predetermined percentage of the coverage length. Furthermore, an assembly line method would by definition have a predetermined coverage length, and the coverage percentage would be a predetermined percentage of the coverage length.

Furthermore, with respect to the various adhesive coverage areas recited and claim, it is known that bond strength increases with adhesive coverage area, but that the risk of seepage also increases with adhesive coverage area. One of ordinary skill in the art would know to conduct routine experimentation as suggested in Adhesives Handbook pages 18-20 in order to find the best coverage area for creating the strongest bond without the risk of adhesive seepage that can damage the end product. Adhesives Handbook pages 18-20 discloses that the stress profile, i.e., maximum stress transfer would depend on the intended use of the joint, and that experimentation would determine the optimal adhesive especially with regard to desired overlaps, i.e., coverage and fill areas (see, for example, Adhesives Handbook figures 2.4, 2.5 and 2.6 in page 19 which shows analysis of bond strength, and especially discloses in Figure 2.5 the relationship between length and width of a bond and maximum bond strength). Furthermore, it is considered notoriously well known and conventional in assembly line methods to minimize adhesive seepage. Minimizing adhesive seepage prevents damage to the substrate as well as reduces adhesive consumption. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have conduct

routine experimentation to achieve the coverage areas claimed in order to balance the twin demands of bond strength and reduced seepage.

With regard to the adhesive being viscous, Adhesive Handbook discloses that epoxy adhesives, a viscous adhesive, are often used in automobile applications (see pages 42, first column). Adhesive handbook also discloses that epoxy adhesives have high cohesive strength and low shrinkage and creep. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used a viscous adhesive such as epoxy adhesives in order to achieve the benefits of high cohesive strength and low shrinkage and creep, both of which are factors that maximize stress transfer and minimize seepage.

Furthermore, as to claim 31, Pigott discloses a number of joints wherein the first member includes a coverage portion and flange fill portions as claimed. See Figure 4.

Furthermore, as to claims 25, 26, 31, 33, 34, and 36, Adhesives Handbook discloses many well known joints, including lap joints as in claim 36 (page 8, Figure 2.2, picture d), one half coach joints as in claim 26 and 34 (see page 11, and page 12, top row, third and fourth figure) and full coach joints as in claims 25 and 33 (for example, see page 12, top row, third and fourth figure). As to claim 31, Adhesives handbook also discloses joint members with arcuate portions in the variety of coach joints. One in the art would appreciate that all of these joints are well known, have certain favorable loading characteristics (see Adhesives Handbook, pages 8, 18 and 19), and would utilize routine experimentation such as a stress analysis as disclosed in Adhesives Handbook to determine the appropriate joint. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the claimed joints disclosed in Adhesives Handbook in order to achieve proper stress handling characteristics.

As to claim 29 and 30, the claimed dimensions are considered achievable based on the stress analysis disclosed in Adhesives Handbook and applied to claim 23 above.

According to the MPEP 2141, the standard to follow in determining obviousness is that factual inquiries set forth in *Graham v. John Deere*, 383 U.S. 1, 148 U.S.P.Q. 459 (1966). These include determining the scope and contents of the prior art, ascertaining the difference between the prior art and the claims in issue, resolving the level of ordinary skill in the pertinent art and evaluating evidence of secondary consideration. According to the MPEP, the Applicant's

invention must be considered as a whole, the references must also be considered as a whole and suggest the desirability of making the combination of references. Further, the references must be viewed without impermissible hindsight and there is a reasonable expectation of success.

U.S. Patent Number 4,759,489 to Pigott discloses a method of automobile body building by aligning a separate upper and lower body module that are joined together using a precision mating location for fitting the modules together. The invention of Pigott '489 is an improved method for automobile body building that is in contrast to the conventional practice of building the car body as an open box structure (column 1, lines 10-19). The body assembly method of Pigott '489 includes the steps of first forming an upper body module 50 that incorporates the roof area and then forming a lower body module 78 that incorporates the floor area. The method also includes the steps of providing precision formed mating locations 62 on the upper and lower body modules 78 and utilizing the mating locations on the upper module as a reference for fitting of the interior parts and equipment into the upper module 50. It is contemplated that one module has a precision drilled hole 82 and the other module has a precision turned pin 62 in order to align the two modules with respect to each other. The method further includes the steps of fitting the upper and lower modules together by use of the mating locations after the interior parts and equipment have been fitted into both modules. In this example, the upper and lower modules are locked together at the mating locations by bolting. The modules are permanently joined at a joining station by welding.

Pigott also discloses an apparatus for automobile building that includes two sets of workstations. The first workstation 20 includes an upstream station at which an upper body module 50 incorporating a body roof area is formed having a set of locations that reference a master body point and at least one substation where subassemblies are fitted to the upper module

utilizing the locations on the module to define reference axes, to ensure precision mounting of the subassemblies. The second set of workstations 22 includes a similar upstream station for a lower module incorporating a body floor area, and a mating station 30 at which the upper and lower modules and fitted subassemblies are mated together by use of the respective reference locations on the two modules. While Pigott discloses a sealer and/or adhesive station 28, it is prior to the mating station 30 or the joining station 32 (column 3, lines 21-27). Obviously, the sealer and/or adhesive station does not form a joint between the upper and lower modules, since the upper and lower modules have not yet been mated together. The sequencing of steps is critical in an assembly process, and cannot be viewed in isolation. The apparatus also includes a joining station 30 at which the mated upper and lower modules are permanently fixed together, such as by welding. Pigott '489 does not disclose a method of repetitively forming a joint between two members by defining a coverage portion and a fill portion and applying a viscous adhesive in a predetermined amount to secure the two members together, but rather a method of aligning two members using a precision mating surface.

The Adhesives Handbook is a guide for an adhesive designer concerned with adhesive bonding during an assembly process. The Handbook discusses classification of adhesives (pages 1-6), joint design examples (pages 7-17) and joint design criteria (pages 18-20). In particular, the Handbook suggests that to increase bond area, it is preferable to increase bond width. Similarly, to increase bond strength, the joint width is increased, rather than to increase joint overlap. The Handbook suggests various criteria, including adhesive used, material of adherents, temperature and pressure of cure, thickness of adhesive layer, age of bonded joint and environmental conditions. The Handbook suggests that a test should be conducted to determine the actual joint area required in light of the anticipated load. An estimate of the bond area can be

made in light of the approximate failing stress of the adhesive and the above conditions as they will occur in an assembly line, and the specimens should be tested with the load applied as in the final assembly. Thus, the Handbook suggests that the joint size be determined from testing under various specified conditions prior to permanently forming the joint. The Handbook does not specifically disclose a method of repetitively forming a joint during a manufacturing process that specifies depositing adhesive up to fifty percent of the predefined coverage portion and up to ten percent of the predefined fill portion.

In contradistinction, claim 23 claims a method of repetitively forming a joint between two members during a manufacturing process using a viscous adhesive. The method includes the steps of positioning a first member to be in contact with a second member, and the area of contact between the members forms a coach joint. The joint includes a coverage portion extending along the first member from a first point on the first member to a second point, and a fill portion adjacent the coverage portion. The method also includes the steps of depositing adhesive along up to fifty percent of the coverage portion and up to ten percent of the coverage portion to consistently form a joint interconnecting the first member with the second member during the manufacturing process. The adhesive amount and placement of adhesive within the fill and coverage portions of the joint is designated to keep seepage to a minimum and stress transfer to a maximum. Claim 31 is similar to claim 23 and is directed to a coach joint. Claim 36 is similar to claim 23 and is directed to a lap joint. In claim 31 and 36, the coverage portion of the joint is defined, and the adhesive is deposited between fifty to seventy-five percent of the coverage portion. This is a novel and unobvious method of forming a joint between two members in a systematic manner. Progress in the automobile manufacturing art is founded on such new and unobvious methodologies.

As to the differences between the prior art and the claims at issue, the primary reference to Pigott '489 does not teach a method of repeatedly forming a joint between two members during a manufacturing process by defining the coverage portion and the fill portion and depositing the viscous adhesive up to fifty percent of the coverage portion and up to ten percent of the fill portion to repetitively form the joint during the manufacturing process. Pigott '489 does not teach this precise placement of adhesive so that seepage of the adhesive from the joint during the assembly process is a minimum while stress transfer of the joint is maximized. Pigott '489 merely discloses an improved apparatus and method for aligning together vehicle body sections to form a vehicle body.

In the automobile body building method of Pigott '489, the vehicle body is separated into an upper portion and a lower portion. The upper portion and lower portion include formed mating locations for alignment purposes, such as a hole in one member and a corresponding peg in another member. The mating locations are used to temporarily pin together the upper and lower body portions, which are then permanently joined by welding. A weld joint is not the same as an adhesive joint. It is not formed the same way, and does not have the same characteristics. Further, in a weld joint, the weld material may be deposited on an outside surface of the joined panels.

The secondary reference to the Adhesives Handbook merely discloses an experimental method of determining the dimensional characteristics of adhesive bonded joints prior to forming the desired joint. The method disclosed by the Handbook relies on testing various joint sizes in light of predetermined conditions that replicate the conditions in the assembly plant. The joint sizes and failing stresses are plotted on a graph and the graph is utilized to calculate the required joint overlap. Clearly, this experimental process occurs outside of and prior to a manufacturing

process. Thus, the Examiner has merely selected limitations from the prior art to derive Applicant's invention in a piecemeal fashion.

As to the level of ordinary skill in the pertinent art, neither Pigott '489 nor the Handbook alone or in combination with each other, disclose a method for repetitively forming a joint during a manufacturing process using a viscous adhesive that specifically includes the step of defining a coverage portion and/or fill portion for the joint. There is absolutely no teaching in the body panel mating art of Pigott '489 and the general adhesive art of the Adhesives Handbook of a method that includes the step of repetitively forming a joint by providing a first member having a predefined coverage and fill portion, such as a coverage portion extending along the first member from a first point at a first end of the first member to another point at which the first member begins to curve to form a tangent portion. Pigott '489 and the Handbook also do not disclose or teach a method with the step of providing a second fill portion extending from the second point to a line segment that is collinear to the tangent portion. Pigott '489 and the Handbook further do not disclose or teach a method that includes the step of depositing adhesive along up to fifty percent of the coverage portion and up to ten percent of the fill portion to repetitively form a joint during a manufacturing process, to eliminate seepage of the adhesive while maintaining the functionality of the joint.

A joint having a defined coverage portion and a defined fill portion and adhesive deposited along a specified portion of the flange coverage portion and the flange fill portion is simply not the same structure as a first member having a hole and a second member having a corresponding peg for temporarily fixing the first and second members together, and permanently welding the first and second members together. The function of the mating locations of Pigott '489 is to locate the first and second members with respect to each other and

hold them together prior to permanently fixing them together, and not provide a surface area for forming an adhesive filled joint, as disclosed by the Applicant.

The Examiner concurs with the Applicant that Pigott '489 does not disclose a method which specifies that adhesive is deposited up to fifty percent of the coverage portion and up to ten percent of the fill portion to form the joint, so that seepage of the adhesive from the joint is a minimum while stress transfer of the joint is a maximum. Further, the Examiner agrees that Pigott '489 does not disclose the various areas and length percentages specified by the Applicant, or that the adhesive is viscous.

At the same time, the Examiner broadly states that an assembly line method for an adhesive joint would inherently have a predetermined coverage length, and that the coverage percentage would be a predetermined percentage of the coverage length. As the Examiner has stated, in an assembly line process, every operation must be conducted the same to avoid variability between items. The Examiner also states that one of ordinary skill in the art would know to conduct routine experimentation, as set forth in the Handbook, to determine the best coverage area to create the strongest bond without risk of adhesive seepage. The Examiner further states that Figures 2.4, 2.5 and 2.6 of the Handbook illustrate the relationship between length and width of an adhesive bond and maximum bond strength. The Applicant agrees with the Examiner that in Figure 2.5, the effect of overlap and width on the strength of an adhesive joint is illustrated using two scenarios, the width held constant and the length varying, and the length held constant and the width varying.

The Applicant also agrees with the Examiner that it is obvious from the teachings of the Handbook to conduct experiments to determine the length and width of overlap of a joint. This is precisely the point of novelty of the Applicant's invention, the length and width of overlap and

deposit of adhesive are defined in advance of the manufacturing process to avoid the need for experimentation during the manufacturing process, and for consistently and repetitively forming a joint during the manufacturing process to avoid seepage while maintaining the integrity of the joint.

At the same time, the Applicant asserts that it is not obvious from the Handbook to define a coach joint in terms of the relationship between a coverage and a fill portion, and to repetitively deposit adhesive up to fifty percent of the coverage portion and up to ten percent of the fill portion, nor is it obvious to deposit adhesive between fifty to seventy percent of the coverage area of a lap joint. The step of experimentally establishing the amount of physical overlap of a joint taught by the Adhesives Handbook is not the same as the step of defining a coverage portion and a fill portion and specifying for each portion the amount of adhesive used to form the joint taught by the Applicant.

The Handbook merely discloses an experimental method of determining the dimensional characteristics of adhesive bonded joints prior to forming the desired joint. The method disclosed by the Handbook relies on testing various joint sizes in light of predetermined conditions that replicate the conditions in the assembly plant. The joint sizes and failing stresses are plotted on a graph and the graph is utilized to calculate the required joint overlap. Clearly, this experimental process occurs outside of and prior to a manufacturing process. Therefore, the general adhesive art of the Handbook does not show a method for repetitively forming a joint between two members during a manufacturing process using a viscous adhesive by defining the coverage portion and a fill portion, and the adhesive is deposited along a specified portion of the flange coverage portion and the flange fill portion.

The Examiner maintains that the body panel mating art of Pigott is the same as the adhesive joint forming art of the present application. Clearly, the body panel mating art does not show the method for repetitively forming an adhesive joint by defining a fill portion and a coverage portion and depositing a predetermined amount of a viscous adhesive within the defined portions.

The present invention sets forth a unique and unobvious method for repetitively forming a joint during a manufacturing process using a viscous adhesive that specifically includes the step of defining a coverage portion and/or fill portion for the joint, and the amount of adhesive applied within these portions. The method is both practical and economical to use in an assembly line process where excess seepage from the joint is undesirable.

To modify either Pigott '489 or the Adhesives Handbook into the claimed invention of claims 23, 31 or 36 would completely change their construction and may render the process inoperable. The combination of Pigott '489 and the Handbook would yield a first workstation at which an upper body module is formed having a set of locations that reference a master body point and at least one substation where subassemblies are fitted to the upper module utilizing the locations of the modules to define reference axis, to precision mount the subassemblies. A similar lower body module would be formed at a second set of workstations. The combination would also include a joining station where the mated upper and lower modules are permanently fixed together, using welding. The type of joint and the amount of overlap between the upper module and the lower module would be determined by experimentation, wherein the length and width of overlap of the upper body module and lower body module are varied.

Such a combination is clearly distinguishable from Applicant's invention, in that the present invention is a method that includes the steps of predefining a coverage portion and a fill

portion within the overlap area of the two members, and applying an adhesive along up to fifty percent of the coverage portion and up to ten percent of the fill portion to repetitively form the joint to avoid seepage. The unobvious feature of the present application is to predefine the coverage and fill portion of the overlapped member and to specify the amount of adhesive applied in each portion. That is, the adhesive is deposited along up to fifty percent of the coverage portion and up to ten percent of the fill portion to form a coach joint.

The suggested combination does not disclose or even suggest a method for applying the adhesive by defining a coverage and fill portion for the joint and the amount of adhesive deposited in each portion, as disclosed by the Applicant. Neither Pigott nor the Handbook disclose or suggest where to apply the sealer within a defined coverage and fill portion or how much sealer to use within the defined coverage and fill portions. The novelty of the Applicant's invention is that a method is provided for predefining the coverage and fill portion of the joint and specifying the amount of adhesive to use with respect to defined areas of the joint, to repetitively form a joint that maximizes stress transfer while minimizing seepage. There is absolutely no suggestion whatsoever in any of the references for making such a modification, or what the intended advantages would be.

The Examiner argues that one of ordinary skill in the art would know to conduct routine experimentation, as suggested in the Handbook, to determine the best coverage area for creating the strongest bond without risk of failure. The Applicant agrees with the Examiner that one of ordinary skill in the art reading the Adhesives Handbook would be inclined to conduct routine experimentation to determine bond area. However, Applicant does not disclose or suggest the use of routine experimentation to determine the best coverage area for creating the strongest bond without risk of failure. Again, the novel aspect of the present invention eliminates the need

for routine experimentation, since the coverage portion and the fill portion of the coach joint are defined, and the adhesive is deposited along up to fifty percent of the defined coverage portion and up to ten percent of the defined fill portion, to repetitively form a tight joint with minimal seepage and maximal stress transfer, and for a lap joint between fifty to seventy-five percent of the coverage portion. This methodology clearly is not obvious from the combination of Pigott and the Adhesives Handbook.

There is no factual basis in the references relied upon which supports the Examiner's assumption that an assembly line method would inherently have a predetermined coverage length and that the coverage percentage would be a predetermined percentage of the coverage length. The Examiner may not, because he doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. See *In re Warner*, 379 F.2d 1011, 154 U.S.P.Q. 173 (CCPA 1967).

The Applicant has described in detail the scope and contents of the prior art, set forth the difference between the prior art and the claimed invention, and described the ordinary skill in the art. In order to make a prima facie case of obviousness, the teachings or suggestion to make the claimed combination must be found in the prior art and not in the Applicant's disclosure. Further, the Examiner must provide an objective reason to combine the teachings of the reference. The Applicant submits that there is no teaching in the prior art cited by the Examiner to suggest a method of repetitively forming an adhesive joint during a manufacturing process by defining the coverage portion and the fill portion of the coach joint, and depositing adhesive along up to fifty percent of the defined coverage portion and up to ten percent of the defined fill portion, to form the joint. Similarly, for a lap joint the adhesive is deposited between fifty to seventy-five percent of the coverage portion. These dimensions and adhesive deposit locations

are defined so that stress transfer is maximized and seepage is minimized. The problem solved by the Applicant is different than the problem solved by the cited references and there is no reason, suggestion or motivation to combine the references.

There is simply no motivation in the cited references to combine the disparate body module mating art of Pigott '489 that uses a welded joint with the general adhesive art of the Adhesives Handbook. There is no reason for one concerned with the precise mating of two members to consult an adhesive handbook. The novelty of Pigott '489 is how the body modules are separately formed, held in place, and then joined together by welding. A weld joint is simply not the same as an adhesive joint. There is no suggestion in the prior art that these are comparable structures.

The Examiner cannot use the Applicant's invention as an instruction manual or template to piece together the disparate teachings of the prior art so that the claimed invention can be rendered obvious. In this instance, the Examiner is making broad-based assumptions regarding an assembly line and adhesive coverage. Yes, in an assembly line the amount of adhesive and placement of adhesive would be specified. Yes, the Adhesives Handbook suggests that routine experimentation can be used to determine the best coverage area to create a strong bond. But, the Adhesives Handbook is very general and does not state what experiments to conduct or the end result of such experimentation. The art of joint forming is very old, and as such, advances are narrow, but still novel. The art of repetitive joint forming during a manufacturing process is not the same as the body panel mating art of Pigott or the general adhesive application art of the Adhesives Handbook. The Applicant provides a new and novel method of repetitively forming a joint during a manufacturing process that eliminates the need for experimentation. It is respectfully submitted that the Examiner's stated conclusion of obviousness is based on

speculation and hindsight reconstruction of the claimed invention from various disparate teachings in the prior art.

Applicant further submits that the Examiner must consider comparative data in the specification which is intended to illustrate the claimed invention in reaching a conclusion with regard to the obviousness of the claims. *In re Margolis*, 228 U.S.P.Q. 940 (Fed. Cir. 1986); MPEP 8<sup>th</sup> Edition 716.01(a). As stated in *Custom Accessories Inc. v. Jeffrey-Allen Industries Inc.*, 1 U.S.P.Q.2d 1196, 1199, the CAFC stated that “The absence of objective evidence does not preclude a holding of nonobviousness because such evidence is not a requirement for patentability.”

Against this background, it is submitted that the present invention of claims 23 and 31 and 36 are not obvious in view of the combination of Pigott and the Adhesives Handbook. The references fail to teach or suggest the specific method of repetitively forming an adhesive joint during a manufacturing process by defining the coverage portion and the fill portion of the coach joint, and depositing adhesive along up to fifty percent of the defined coverage portion and up to ten percent of the defined fill portion, to form the joint. Therefore, it is respectfully submitted that claims 23, 31 and 36 are allowable over the rejection under 35 U.S.C. §103(a).

In addition, the dependent claims, 25, 26 and 33 and 34 merely clarify the type of coach joint as a full couch joint in claims 25 and 33 and a one-half coach joint in claims 26 and 34 respectively. Therefore, it is respectfully submitted that claims 25, 25, 33 and 34 are allowable over the rejection under 35 U.S.C. §103(a).

**B. Second 35 U.S.C. §103(a) Issue.**

In the alternative, claims 23, 25, 26, 31, 33, 34 and 36 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Number 5,849,122 to Kenmochi et al. in view of

Adhesives Handbook (pages 1-19, 28-31, 40-43 and 94). Applicant respectfully traverses this rejection.

U.S. Patent Number 5,849,122 to Kenmochi et al. discloses a method of fabricating a vehicle body panel having a honeycomb sandwich structure. Kenmochi et al. '122 contemplates that the vehicle panel 14 will have a first plate 30, a second plate 22 and a honeycomb core 28 sandwiched between the first plate and the second plate. It is contemplated that the second plate 22 is an integral part of a structural panel of the vehicle body. It is also contemplated that the honeycomb sandwich structure is composed of a pre-formed sub-honeycomb panel 26 having a predetermined shape and includes the first plate 30 connected to a first surface of the honeycomb core 28.

The method includes the steps of strengthening the second plate 22 by connecting the structural panel 14 to a structural member, and the second plate 22 is integral to the structural panel 14 and the strength member is part of the vehicle body framework. The method also includes the step of pressing the pre-formed sub-honeycomb panel 26 against the second plate with an adhesive layer 24 or sheet therebetween, to connect a second surface of the honeycomb core to the second plate 22. The second surface of the honeycomb core is located opposite of the first surface. The honeycomb core 28 is made of a permeable, paper material, such that pressing the sub-honeycomb panel 26 against the second plate occurs immediately after a drying step conducted after washing of a painting stage of the vehicle body, to prevent the honeycomb core from getting wet. The step of pressing the sub-honeycomb panel also includes the step of releasing pressure formed within the sub-honeycomb panel 26 by the pressing step, to prevent damage to the sub-honeycomb core due to pressure inside a plurality of cells in the sub-honeycomb as a result of pressing onto the strengthened second plate. Kenmochi et al. '122 does

not disclose a method of repetitively forming a joint where the coverage portion and the fill portion of the coach joint are defined, and a viscous adhesive is deposited along up to fifty percent of the defined coverage portion and up to ten percent of the defined fill portion.

As to the differences between the prior art and the claims at issue, the primary reference to Kenmochi et al. '122 does not teach a method of repetitively forming a joint between two members during a manufacturing process by defining the coverage portion and the fill portion and depositing the viscous adhesive up to fifty percent of the coverage portion and up to ten percent of the fill portion to repetitively form the joint during the manufacturing process with minimal seepage. Specifically, the Kenmochi et al. '122 reference merely teaches a method for constructing a laminate vehicle body panel that has a first plate, a second plate, and a honeycomb core sandwiched between the first and second plate. Two adhesive layers or sheets are positioned between the honeycomb layer and the plates. The adhesive layer is defined by Kenmochi '122 as an "adhesive sheet having a substantial thickness" (column 7, lines 9-24).

The secondary reference to the Adhesives Handbook does not teach a method of repetitively forming a joint between two members during a manufacturing process by defining the coverage portion and the fill portion and depositing the viscous adhesive up to fifty percent of the coverage portion and up to ten percent of the fill portion to repetitively form the joint during the manufacturing process. The Adhesives Handbook merely discloses a method of determining the dimensions of adhesive bonded joints. The method relies on testing various joint sizes in light of predetermined conditions that replicate the conditions in the assembly plant. The joint sizes and failing stresses are plotted on a graph and the graph is utilized to calculate the required joint overlap.

As to the level of ordinary skill in the pertinent art, neither Kenmochi et al. '122 nor the Handbook alone or in combination with each other, disclose a method for repetitively forming a joint during a manufacturing process using a viscous adhesive that specifically includes the step of defining a coverage portion and/or fill portion for the joint and specify the amount of adhesive deposited as a function of the defined coverage portion and fill portion. There is absolutely no teaching in the body panel fabrication art of Kenmochi et al. '122 and the general adhesive art of the Adhesives Handbook of a method that includes the step of repetitively forming a joint by providing a first member defined by a coverage portion extending along the first member from a first point at a first end of the first member to another point at which the first member begins to curve to form a tangent portion, and specifying the amount of adhesive deposited as a function of the defined coverage portion and fill portion.

The body panel fabrication art of Kenmochi et al. '122 and general adhesive art of the Handbook do not disclose or suggest a method that includes the step of repetitively forming a joint by defining a coverage portion and a fill portion, and the amount of adhesive deposited within these portions. The body panel fabrication art of Kenmochi et al. '122 and general adhesive art the Handbook do not disclose or suggest a method that includes the step of forming a coach joint by providing a first member having a coverage portion extending along the first member from a first point at a first end of the first member to a second point at which the first member curves to form a tangent portion. The body panel fabrication art of Kenmochi et al. '122 and the general adhesive art of the Handbook also do not disclose, anticipate or otherwise suggest the step of providing a second fill portion extending from the second point to a line segment that is collinear to the tangent portion. Further, the body panel fabrication art of Kenmochi et al. '122 and the general adhesive art of the Handbook do not disclose or otherwise

suggest the step of depositing adhesive along up to fifty percent of the coverage portion and up to ten percent of the second fill portion to form a coach joint.

The Examiner maintains that the body panel fabrication art of Kenmochi et al. '122 is the same as the adhesive joint forming art of the present application. Clearly, the body panel fabrication art does not show the method for repetitively forming an adhesive joint by defining a fill portion and a coverage portion and depositing a predetermined amount of a viscous adhesive within these defined portions.

The present invention sets forth a unique and unobvious method for repetitively forming a joint during a manufacturing process using a viscous adhesive that specifically includes the step of defining a coverage portion and/or fill portion for the joint and the amount of adhesive used in these defined portions. The method is both practical and economical to use in an assembly line process where excess seepage from the joint is undesirable.

To modify either Kenmochi et al. '122 or the Adhesives Handbook into the claimed invention of claim 1 would completely change their construction and may render them inoperable. The combination of Kenmochi '122 and the Handbook would yield a vehicle body panel having a honeycomb laminate structure. The type of adhesive sheet used to secure the laminate would be determined by experimentation. There is absolutely no suggestion whatsoever in any of the references for making such a modification, or what the intended advantage would be.

Such a combination is distinguishable from Applicant's invention, in that the present invention is a method of defining a coverage portion and a fill portion within the overlap area of the two members, and applying a viscous adhesive along up to fifty percent of the coverage portion and up to ten percent of the fill portion to form the coach joint, or between fifty to

seventy-five percent of the coverage portion for a lap joint. The unobvious feature of the present application is to define the coverage and fill portion of the overlapped joint and to define the amount of viscous adhesive applied in each portion. That is, the adhesive is deposited along up to fifty percent of the coverage portion and up to ten percent of the fill portion to form a coach joint.

The suggested combination does not disclose or even suggest a method for applying the viscous adhesive by defining a coverage and fill portion for the joint and the amount of adhesive deposited in each portion, as disclosed by the Applicant. Kenmochi teaches away from the present invention by disclosing that the adhesive layer is a sheet having a substantial thickness, it does not teach a relationship between the dimensions of the sheet to a defined coverage portion and fill portion.

Again, the Examiner argues that one of ordinary skill in the art would know to conduct routine experimentation, as suggested in the Handbook, to determine the best coverage area for creating the strongest bond without risk of seepage. The Applicant agrees with the Examiner that one of ordinary skill in the art would be inclined to conduct routine experimentation prior to the manufacturing process, as previously discussed in this response. The novelty of the present invention is that the need for routine experimentation is eliminated, since the coverage portion and the fill portion of the coach joint are determined in advance, and the viscous adhesive is deposited along up to fifty percent of the defined coverage portion and up to ten percent of the defined fill portion, to form the coach joint, and between fifty to seventy-five percent of the coverage portion for a lap joint. The Examiner may not, because he doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply

deficiencies in the factual basis. See *In re Warner*, 379 F.2d 1011, 154 U.S.P.Q. 173 (CCPA 1967).

As previously stated, the standard to follow in determining obviousness is that factual inquiries set forth in *Graham v. John Deere*, 383 U.S. 1, 148 U.S.P.Q. 459 (1966). These include determining the scope and contents of the prior art, ascertaining the difference between the prior art and the claims in issue, resolving the level of ordinary skill in the pertinent art and evaluating evidence of secondary consideration. According to the MPEP, the Applicant's invention must be considered as a whole, the references must also be considered as a whole and suggest the desirability of making the combination of references. Further, the references must be viewed without impermissible hindsight and there is a reasonable expectation of success.

The Applicant has described in detail the scope and contents of the prior art, set forth the difference between the prior art and the claimed invention, and described the ordinary skill in the art. In order to make a prima facie case of obviousness, the teachings or suggestion to make the claimed combination must be found in the prior art and not in the Applicant's disclosure. Further, the Examiner must provide an objective reason to combine the teachings of the reference.

Against this background, it is submitted that there is no teaching in the prior art of Kenmochi '122 and the Adhesives Handbook cited by the Examiner, to suggest a method of consistently forming a joint during a manufacturing process by defining the coverage portion and the fill portion of the coach joint, and depositing a viscous adhesive along up to fifty percent of the defined coverage portion and up to ten percent of the defined fill portion, to form the joint. Similarly, for a lap joint the adhesive is deposited between fifty to seventy-five percent of the

coverage portion. These dimensions and adhesive deposit locations are defined so that stress transfer is maximized and seepage is minimized.

The problem solved by the Applicant is different than the problem solved by the cited references and there is no reason, suggestion or motivation to combine the references. The Examiner cannot use the Applicant's invention as an instruction manual or template to piece together the teachings of the prior art so that the claimed invention can be rendered obvious. In this instance, the Examiner is making broad-based assumptions regarding an assembly line and adhesive coverage. Yes, in an assembly line the amount of adhesive and placement of adhesive would be specified. Yes, the Adhesives Handbook suggests that routine experimentation be used to determine the best coverage area to create a strong bond. But, the Adhesives Handbook does not state what experiments to conduct or the end result of such experimentation. The art of joint-forming is very old, and as such, advances are narrow, but still novel. The Applicant provides a new and novel method of repetitively forming a joint using a viscous adhesive during a manufacturing process. It is respectfully submitted that the Examiner's stated conclusion of obviousness is based on speculation and hindsight reconstruction of the claimed invention from disparate teachings in the prior art. As the Court of Appeals for the Federal Circuit has indicated in *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992), it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the isolated disclosures and teachings of the prior art so that the claimed invention may be rendered obvious.

Applicant submits that the Examiner must consider comparative data in the specification which is intended to illustrate the claimed invention in reaching a conclusion with regard to the obviousness of the claims. *In re Margolis*, 228 U.S.P.Q. 940 (Fed. Cir. 1986); MPEP 8<sup>th</sup> Edition 716.01(a). As stated in *Custom Accessories Inc. v. Jeffrey-Allen Industries Inc.*, 1 U.S.P.Q.2d

1196, 1199, the CAFC stated that “The absence of objective evidence does not preclude a holding of nonobviousness because such evidence is not a requirement for patentability.”

Against this background, it is submitted that the present invention of claims 23 and 31 and 36 is not obvious in view of the combination of Kenmochi et al. ‘122 and the Adhesives Handbook. The references fail to teach or suggest the specific method of repetitively forming an adhesive joint during a manufacturing process by defining the coverage portion and the fill portion of the coach joint, and depositing adhesive along up to fifty percent of the defined coverage portion and up to ten percent of the defined fill portion, to form the joint. Therefore, it is respectfully submitted that claims 23, 31 and 36 are allowable over the rejection under 35 U.S.C. §103(a).

In addition, the dependent claims, 25, 26, 33 and 34 merely clarify the type of coach joint as a full coach joint in claims 25 and 33 and a one-half coach joint in claims 26 and 34 respectively. Therefore, it is respectfully submitted that claims 25, 25, 33 and 34 are allowable over the rejection under 35 U.S.C. §103(a).

Accordingly, the facts do not support the obviousness rejection. Furthermore, the law does not support the obviousness rejection.

The United States Court of Appeals for the Federal Circuit (CAFC) has stated in determining the propriety of a rejection under 35 U.S.C. §103, it is well settled that the obviousness of an invention cannot be established by combining the teachings of the prior art absent some teaching, suggestion or incentive supporting the combination. See *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 227 U.S.P.Q. 657 (Fed. Cir. 1985); *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 221 U.S.P.Q. 929 (Fed. Cir. 1984). The law followed by our court of

review and the Board of Patent Appeals and Interferences is that “[a] *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.” *In re Rinehart*, 531 F.2d 1048, 1051, 189 U.S.P.Q. 143, 147 (CCPA 1976). See also *In re Lulu*, 747 F.2d 703, 705, 223 U.S.P.Q. 1257, 1258 (Fed. Cir. 1984) (“In determining whether a case of *prima facie* obviousness exists, it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification.”)

There is a fundamental axiom in patent law that if a reference must be reconstructed or rearranged to meet Applicant’s claims, then the modification of that reference is inappropriate and cannot stand. The only manner in which the combination of Kenmochi ‘122 and the Adhesives Handbook or Pigott ‘489 and the Adhesives Handbook can be applicable is by a complete rearrangement of the components in view of Applicant’s teachings. There is no suggestion of that rearrangement in the prior art.

There is another fundamental axiom in patent law that:

The road to obviousness must be like a flagstone path, plainly perceptible in either the light or the dark.

The Examiner’s path is tortuous and laid of chips of the prior art in pursuit of Applicant’s enlightenment. Hence, the path to obviousness has not been clearly marked, but rather piecemealed together in hindsight fashion in view of the teachings of the claimed present invention.

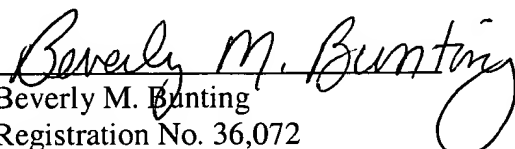
The art of forming a joint during a manufacturing process is a developed art which is advanced by apparently small improvements. Nevertheless, they are significant advances which

contribute to the commercial well being of society. Applicant's invention represents such an advancement in that this art and the claims are commensurate in scope to the inventive contribution.

**IX. Conclusion.**

In conclusion, the claims in the instant application are very specific. They are directed to a method of repetitively forming a joint between two members during a manufacturing process by defining the coverage portion and the fill portion and depositing the viscous adhesive up to fifty percent of the coverage portion and up to ten percent of the fill portion to repetitively form the joint during the manufacturing process. For all the reasons set forth in the patent specification, the methodology achieves several advantages not achieved by the prior art. Perhaps more importantly, however, none of the prior art cited by the Patent Examiner discloses Applicant's invention as it is clearly defined in claims 23, 31 and 36, i.e. the three independent claims in this case. Accordingly, the claims define patentable subject matter and are in condition for allowance. Such action is respectfully requested.

Respectfully submitted,

  
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Janice R. Kuehn  
Janice R. Kuehn



## APPENDIX A

### CLAIMS ON APPEAL

23. A method of repetitively forming a joint between two members during a manufacturing process using a viscous adhesive, said method comprising the steps of:

positioning a first member to be in contact with a second member to form a coach joint during the manufacturing process, wherein the joint is defined by both a coverage portion extending along the first member and a fill portion adjacent the coverage portion and extending along the first member;

depositing the viscous adhesive along up to fifty percent of the coverage portion and up to ten percent of the fill portion to repetitively form the joint between the first member with the second member during the manufacturing process, so that seepage of the adhesive from the joint is a minimum while stress transfer of the joint is a maximum.

25. A method as set forth in claim 23 wherein the joint is a full coach joint.

26. A method as set forth in claim 23 wherein the joint is a one-half coach joint.

31. A method of repetitively forming a joint between two members during a manufacturing process using a viscous adhesive, said method comprising the steps of:

positioning a first member having an arcuate portion to be in contact with a second member to form a coach joint during the manufacturing process, wherein the joint is defined by both a coverage portion extending along the first member from a first point at a first end of the first member to a second point at which the first member begins to curve to form a tangent

portion, and a flange fill portion extending from the second point to a line segment that is collinear to the tangent portion;

depositing the viscous adhesive along up to fifty percent of the coverage portion and up to ten percent of the fill portion to repetitively form the joint between the first member with the second member during the manufacturing process, so that seepage of the adhesive from the joint is a minimum while stress transfer is a maximum.

33. A method as set forth in claim 31 wherein the joint is a full coach joint.

34. A method as set forth in claim 31 wherein the joint is a one-half coach joint.

36. A method of repetitively forming a lap joint between two members using a viscous adhesive during a manufacturing process, said method comprising the steps of:

positioning a first generally planar member to overlap a second generally planar member to form a lap joint during the manufacturing process, wherein the joint includes a coverage portion defined by a length of overlap between the first member and the second member; and

depositing the viscous adhesive at a center point for the coverage length and applying the adhesive between fifty to seventy-five percent of the coverage portion, so that it is equidistant from the center point, to repetitively interconnect the first member and the second member for each joint during the manufacturing process, so that seepage of the adhesive from the joint is a minimum value while stress transfer of the joint is a maximum.